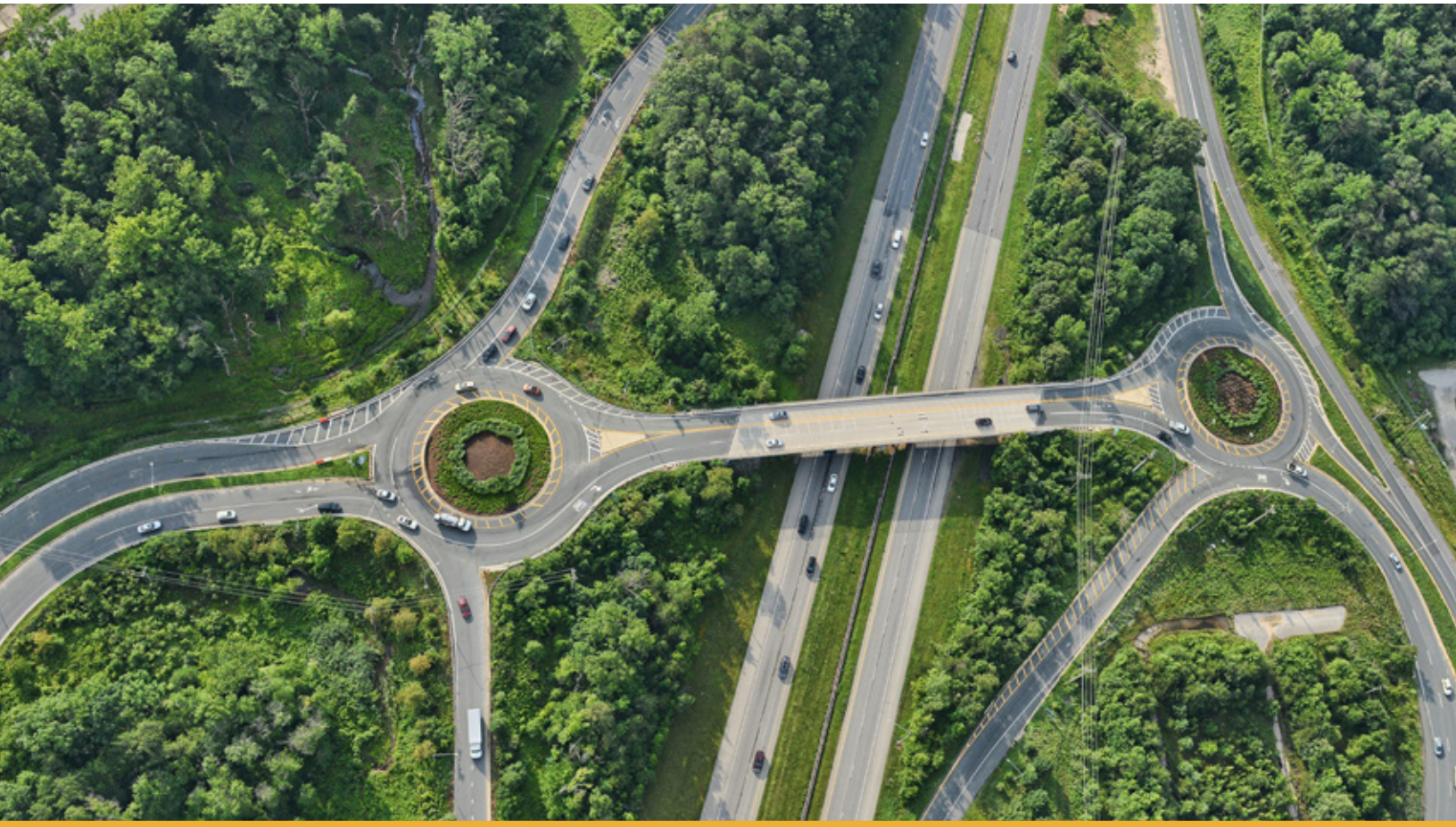
TANGIBLE RESULT #5

Provide an Efficient, Well-Connected Transportation Experience



MDOT will provide an easy, reliable transportation experience throughout the system. This includes good connections and world class transportation facilities and services.

RESULT DRIVER:

Phil Sullivan

Maryland Transit Administration (MTA)

TANGIBLE RESULT DRIVER:
Phil Sullivan
Maryland Transit Administration (MTA)

PERFORMANCE MEASURE DRIVER:
Scott Jacobs
Maryland Transportation Authority (MDTA)

PURPOSE OF MEASURE:
To assess average wait time at facilities.

FREQUENCY:
Quarterly

DATA COLLECTION METHODOLOGY:
Verification of average wait times at facilities for services based on MDTA reporting the percentage of tolls collected via cash payment at toll facilities.

NATIONAL BENCHMARK:
N/A

PERFORMANCE MEASURE 5.1A

Reliability of the Transportation Experience: Percentage of Tolls Collected as Cash

Cash tolls cause more congestion and longer wait times at toll facilities.

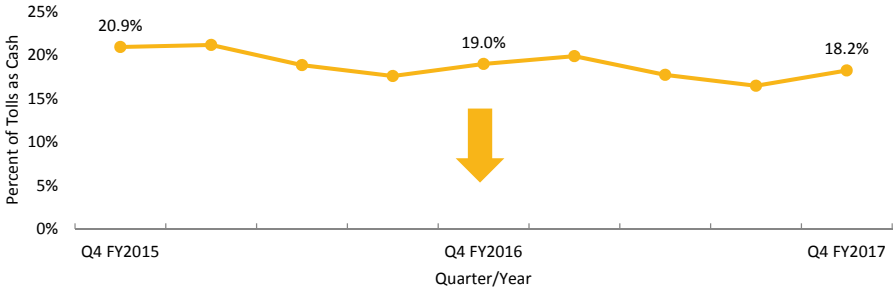
Customers expect limited congestion and minimal wait times, particularly at paid toll facilities. A decrease in this measure indicates more free flow traffic using electronic means of payment.

Currently we are trending positively, as our measure has been decreasing over the past year.

As of Q4 FY2017 we are at 18.22 percent of Tolls Collected as Cash. This is a decrease of 0.75 percent from Q4 FY2016.

MDOT continues to market Electronic Toll Collection and the lanes and signage reconfiguration in the current tri-message sign project is now in procurement.

Chart 5.1A.1: Percent of Tolls Collected as Cash for All Mixed Facilities Q4 FY2015-Q4 FY2017



TANGIBLE RESULT DRIVER:
Phil Sullivan
Maryland Transit Administration (MTA)

PERFORMANCE MEASURE DRIVER:
Jeffrey Gutowski
Maryland Port Administration (MPA)

PURPOSE OF MEASURE:
To assess average turn time at facilities to ensure an efficient transportation experience for our customers.

FREQUENCY:
Annually (in January)

DATA COLLECTION METHODOLOGY:
Verification of average turn times at port facilities for services.

NATIONAL BENCHMARK:
There is not a National Benchmark. However, in researching through Trade and Industry Publications and Trucking Associations, 45 minutes can be established as an efficient turn time.

PERFORMANCE MEASURE 5.1B

Reliability of the Transportation Experience: Average Truck Turn Time per Container Transaction

This performance measure is important because customers of MDOT Port facilities expect reasonable turn times to obtain needed services. The reliability of the transportation experience is assessed through average truck transaction turn times at facilities to ensure that customers have an efficient transportation experience. This measure will allow MDOT to monitor the service provider and improve turn times at our container facility. The data will be reported and reviewed annually.

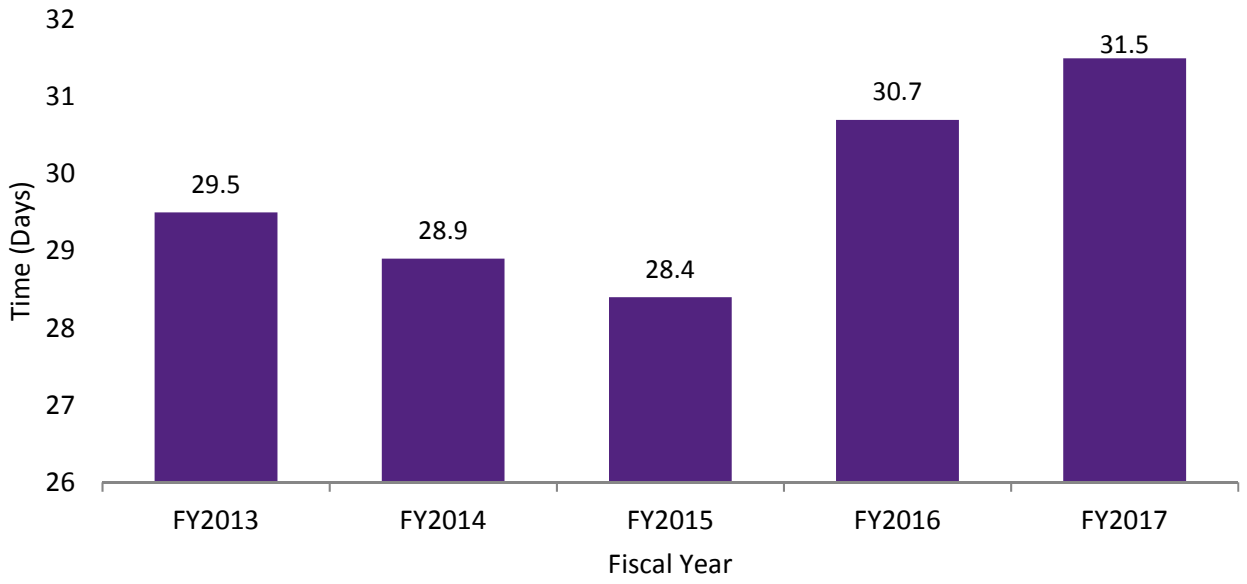
The MPA is reporting on container transaction turn time handled by trucks at Seagirt Marine Terminal by fiscal year. The gate turnaround time is determined by the accumulated time that each truck remains on the terminal to complete its transaction (gate-in and gate-out). The primary objective of the Port is to maintain industry leading turn times of 45 minutes or less. Turn times have increased slightly in FY2017 from 30.7 minutes to 31.5 minutes per transaction. This turn time remains well below industry standards. The increase is directly attributed to elevated container volumes being handled at the terminal due to the Panama Canal expansion allowing for larger vessels to call at the facility.

Continual improvement of the trucker experience is important to MDOT Port Administration as well as the terminal operator. The MPA and terminal operator are committed to improving the truck turnaround times through streamlined gate processes, terminal infrastructure investments, extended gate operating hours, deploying new technologies and investing in new container handling equipment. In addition, maintaining active lines of communication with the Maryland Motor Truck Association, Longshoreman's Association, Customs and Border Protection and United States Coast Guard all are very effective ways to eliminate unnecessary and unwarranted delays in the processing of trucks.

PERFORMANCE MEASURE 5.1B

Reliability of the Transportation Experience: Average Truck Turn Time per Container Transaction

Chart 5.1B.1: Average Annual Truck Turnaround Time per Unit (Box) at Seagirt Marine Terminal FY2013-FY2017



TANGIBLE RESULT DRIVER:
Phil Sullivan
Maryland Transit Administration (MTA)

PERFORMANCE MEASURE DRIVER:
Jeffrey Gutowski
Maryland Port Administration (MPA)

PURPOSE OF MEASURE:
To assess average wait time at MVA facilities.

FREQUENCY:
Quarterly

DATA COLLECTION METHODOLOGY:
Verification of average wait times at MVA facilities for services.

NATIONAL BENCHMARK:
N/A

PERFORMANCE MEASURE 5.1C

Reliability of the Transportation Experience: Average Wait Time (MVA)

This performance measure is important as customers of MDOT expect reasonable wait times to obtain needed services and products. For performance measure 5.1C, the reliability of customer transportation experiences was assessed through monitoring of average wait times at MDOT MVA facilities. The data will be reported and reviewed quarterly.

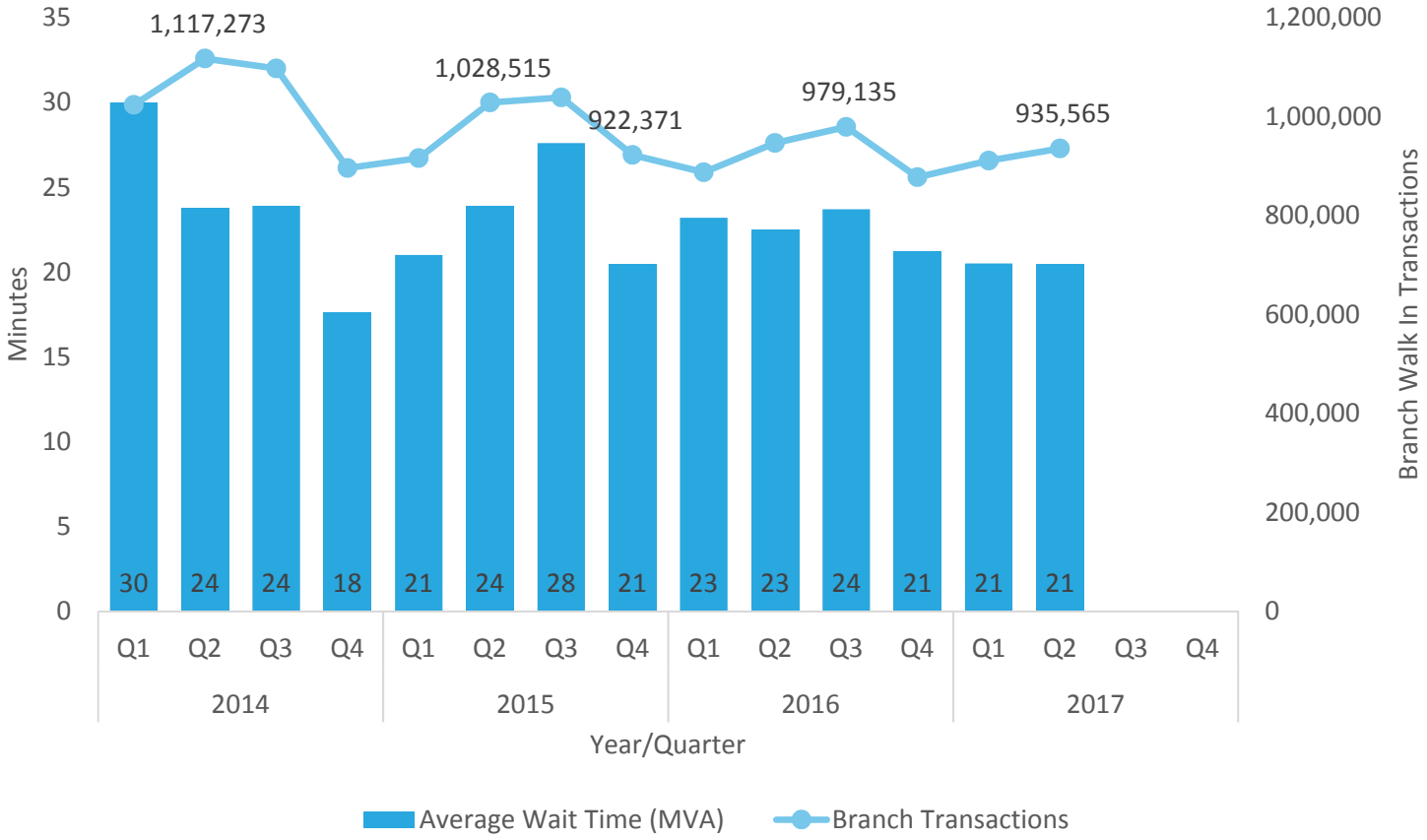
Currently, the MVA reports the average wait time for customers to obtain services and products at all branch offices. The statewide average wait time goal for CY2017 is 21.7 minutes. In the Q2 reporting period, the MDOT MVA average statewide wait time was 20.5. The average total wait time for the calendar to date is 20.5 minutes, which is below the stated goal for the year.

Recently implemented strategies to reduce customer wait times include pre- screening customers at the Customer Information Counter to identify those who would be eligible to use the kiosk for service, tablets at each MVA branch office for customers to use for immediate service, and redesigned email renewal notices for customers.

PERFORMANCE MEASURE 5.1C

Reliability of the Transportation Experience: Average Wait Time (MVA)

Chart 5.1C.1: Average Wait Time (MVA) CY2014-CY2017



TANGIBLE RESULT DRIVER:
Phil Sullivan
Maryland Transit Administration (MTA)

PERFORMANCE MEASURE DRIVER:
Robert Pond
Maryland Transit Administration (MTA)

PURPOSE OF MEASURE:
To assess the percent of on-time performance of our transportation service by mode to ensure a more reliable transportation experience for customers.

FREQUENCY:
Quarterly

DATA COLLECTION METHODOLOGY:
Varies by Mode:

- Bus Data is collected by the CAD/AVL System.
- Rail Mode data is collected by the modal control rooms.
- Paratransit data is transmitted by on-board MDT to the Scheduling System or validated by a call from vehicle to a manager upon rider pick up.

NATIONAL BENCHMARK:
Per APTA Standards Modal OTP Benchmarks are as follows:

Bus – 78 percent

Rail – 90 percent

Para-Transit – 92 percent

PERFORMANCE MEASURE 5.1D

Reliability of the Transportation Experience: On-Time Performance (MTA & MAA)

Reliability of transportation services is important to MDOT customers. Many rely on posted arrival and departure times to make needed connections and for critical appointments. This measure will allow the TBUs to focus resources where needed to improve on-time performance.

The public timetable has been referred to as "our contract with our riders." On-Time Performance (OTP) is the measurement of our adherence to that contract. Maintaining a high level of OTP is of critical importance when providing ground transportation.

Whether a customer has a one-seat ride or needs to make a complex intermodal connection, the rider has an expectation that services will be provided reliably and as scheduled. MTA and MAA schedule adherence drives not only customer perception of the service we provide directly, but our efficient use of taxpayer dollars, management processes, and the efficiency and reliability of State government.

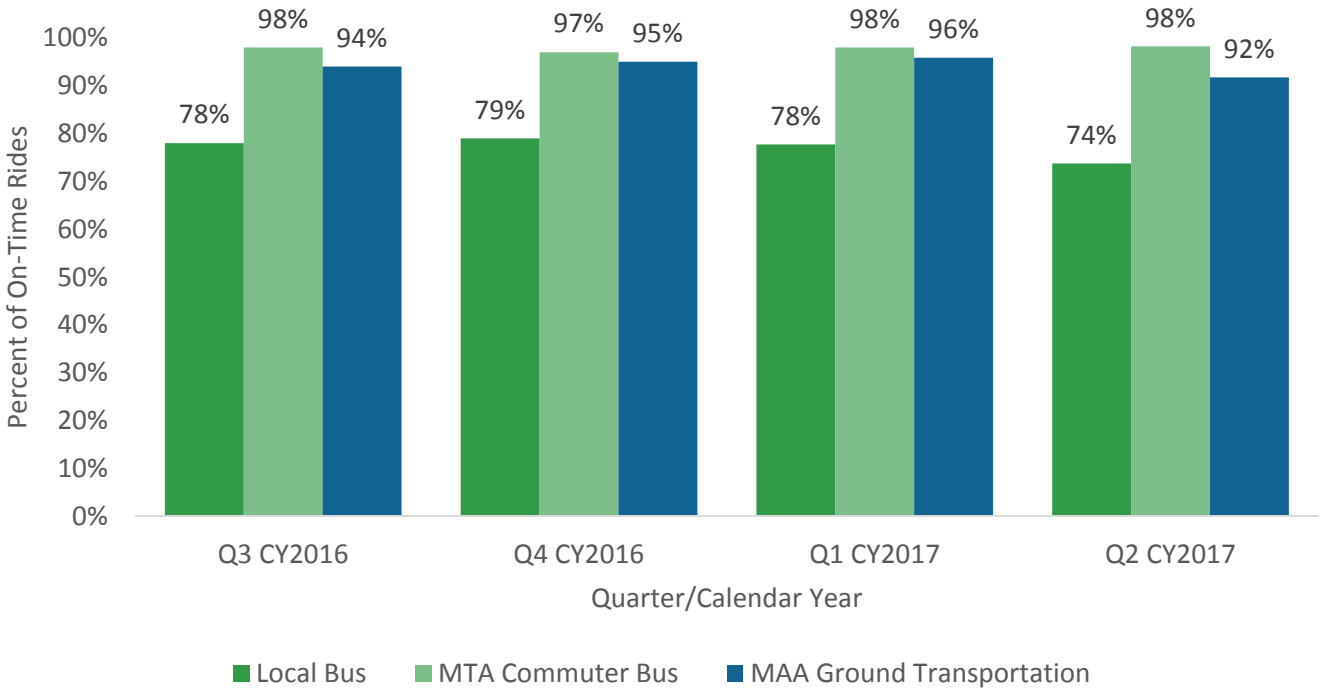
As an organization, MTA continues to strive to meet or exceed APTA benchmarks for OTP across Bus (78 percent), Rail (90 percent), and Paratransit (92 percent) modes. Our commitment to continual improvement of OTP is evident in our efforts to provide a transit network that allows passengers to travel more efficiently throughout our service area utilizing schedules that accurately reflect passenger travel times, driving down service related complaints and resulting in a better passenger experience.

The current Local Bus OTP (74 percent) is the final quarter that OTP will be reflected in this way. This measure shows Local Bus OTP up through Saturday June 17, 2017. The BaltimoreLink system implementation was effective Sunday, June 18, 2017. The 3rd Quarter of CY 2017 (July 1 – September 30) will be the first reporting of BaltimoreLink system results. The system design is easier to manage when faced with the challenges of delivering urban mass transit while simultaneously being more user friendly, enhancing the profile of public transit by providing safe, efficient, reliable transit throughout the region while delivering world class customer service.

PERFORMANCE MEASURE 5.1D

Reliability of the Transportation Experience: On-Time Performance (MTA & MAA)

Chart 5.1D.1: On-Time Performance of MTA Local Bus, MTA Commuter Bus, & MAA Ground Transport CY2016-CY2017



PERFORMANCE MEASURE 5.1D

Reliability of the Transportation Experience: On-Time Performance (MTA & MAA)

Chart 5.1D.2: On-Time Performance of MTA Light Rail, Metro Subway, & MARC Train CY2016-CY2017

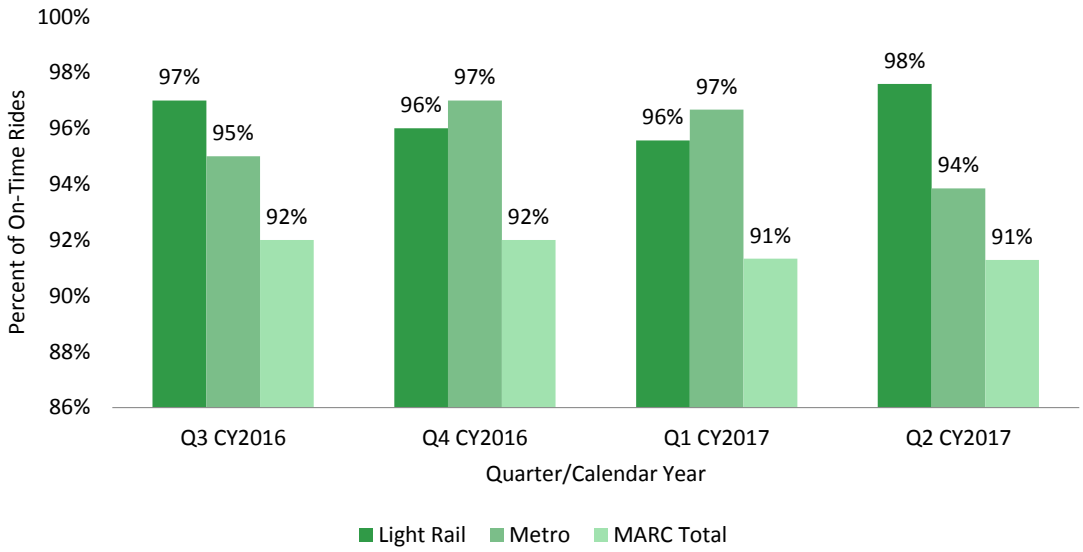
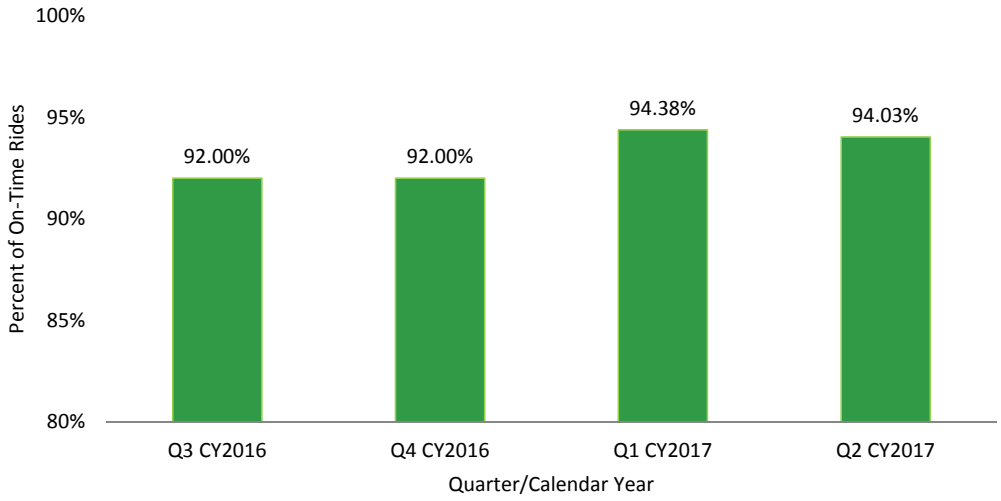


Chart 5.1D.3: On-Time Performance of MTA Paratransit CY2016-CY2017



TANGIBLE RESULT DRIVER:
Phil Sullivan
Maryland Transit Administration (MTA)

PERFORMANCE MEASURE DRIVER:
Roxane Y. Mukai
Maryland Transportation Authority (MDTA)

PURPOSE OF MEASURE:
To provide customers with a gauge by which to assess travel time reliability on the State's highway system.

FREQUENCY:
Annually (in January)

DATA COLLECTION METHODOLOGY:
Formula based.

NATIONAL BENCHMARK:
A Planning Time Index (PTI) which is < = 1.5.

PERFORMANCE MEASURE 5.1E

Reliability of the Transportation Experience: Planning Time Index for Highway Travel

Customers want reliable travel times when traveling on Maryland's highway system. The planning time index (PTI) is a metric that gauges the reliability of travel times on heavily used freeways and expressways during peak congestion.

For example, if a trip during uncongested, free-flowing traffic conditions takes a traveler 15 minutes; a PTI of 2.0 would indicate that the same trip during a heavily congested period could be expected to take up to 30 minutes. MDOT uses the following PTI ranges to describe the varying degrees of travel time reliability:

PTI < 1.5 = Reliable
1.5 < PTI < 2.5 = Moderately Unreliable
PTI > 2.5 = Extremely Unreliable

In 2015, travel time on 8 percent (AM Peak) to 14 percent (PM Peak) of the freeways and expressways was assessed as "extremely unreliable" during congested periods on an average weekday. Almost all of the freeway and expressway segments that are "extremely unreliable" during congested periods are in the Baltimore-Washington region.

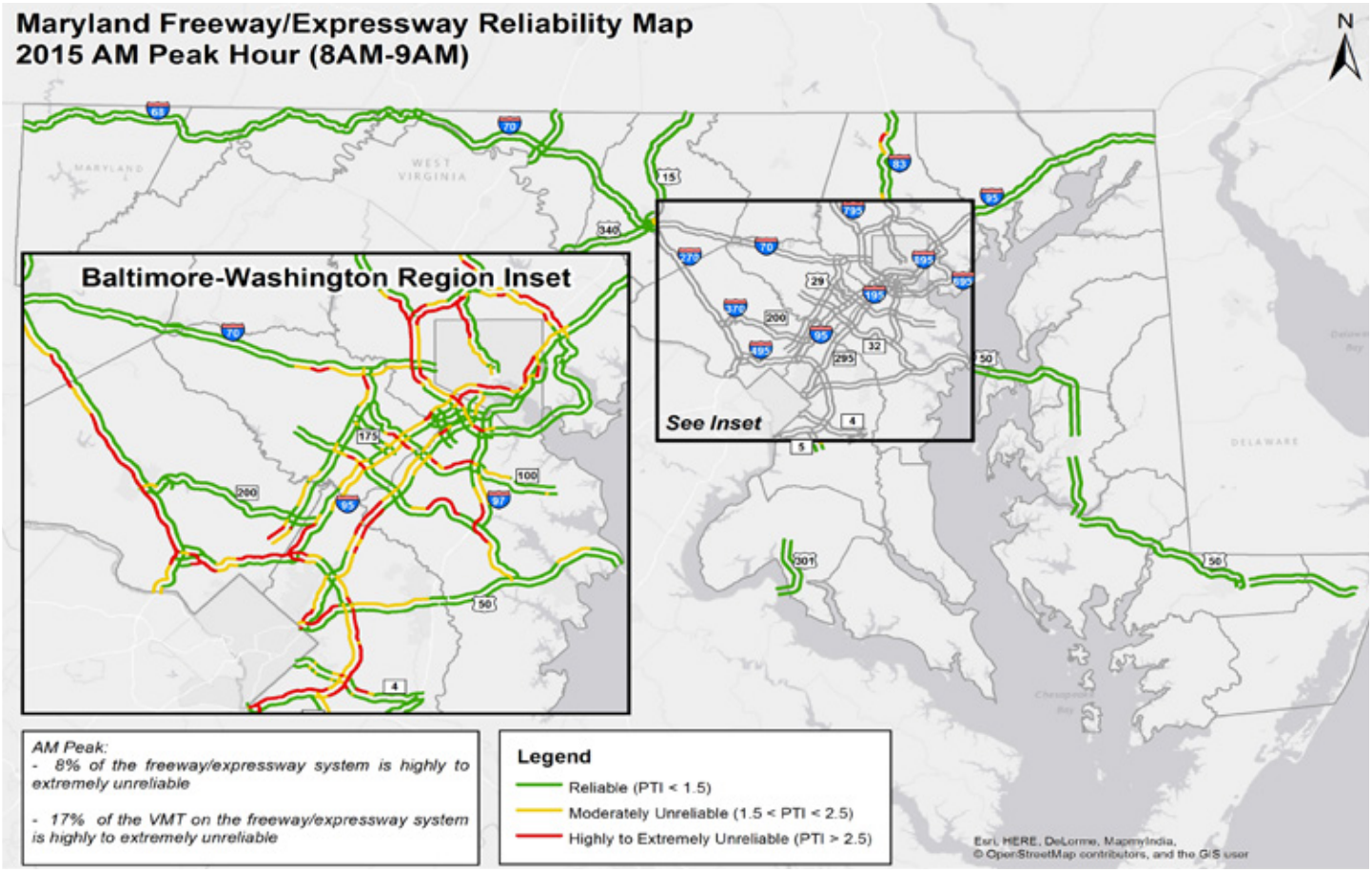
When compared to 2014, the 2015 travel reliability results were mixed. Continued economic recovery led to an increase of 1.6 percent in VMT above 2014, with a slight decrease (two miles) in roadway miles that experienced "extremely unreliable" conditions during the AM Peak and an additional 21 miles of freeway/expressway that experienced "extremely unreliable" travel conditions during the PM Peak.

Changes to the PTI that result from completed highway projects are reflected in the PTI analysis over time. As an example, the I-95 Express Toll Lane project in Baltimore opened in December 2014. The 2015 PTI analysis found that the I-95 SB PTI in the AM peak was reduced from 2.60 to 1.44 and the I-95 NB PTI in the PM peak was reduced from 2.79 to 1.18. The I-95 Expresss Toll lane project area is now assessed as a "reliable" freeway segment.

PERFORMANCE MEASURE 5.1E

Planning Time Index for Highway Travel

When compared to 2014, the AM Peak reflects a 1 percent increase in VMT and a 1 percent decrease in the number of freeway and expressway miles with a PTI > 2.5.

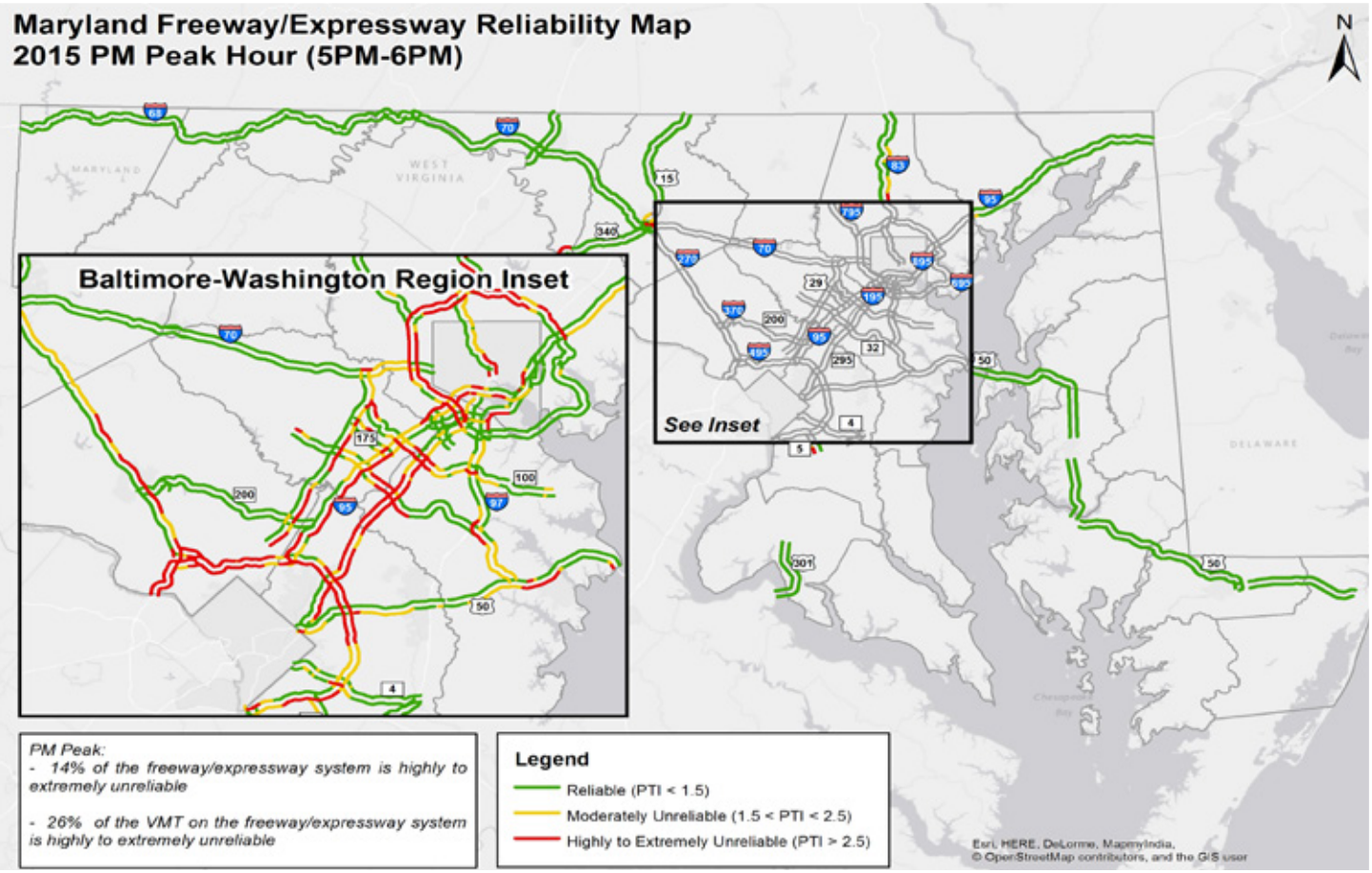


Source: 2016 Maryland State Highway Mobility Report

PERFORMANCE MEASURE 5.1E

Planning Time Index for Highway Travel

When compared to 2014, the PM Peak reflects a 3 percent increase in VMT and a 1 percent increase in the number of freeway and expressway miles with a PTI > 2.5.



Source: 2016 Maryland State Highway Mobility Report

TANGIBLE RESULT DRIVER:
Phil Sullivan
Maryland Transit Administration (MTA)

PERFORMANCE MEASURE DRIVER:
Joseph Sagal
State Highway Administration (SHA)

PURPOSE OF MEASURE:
To understand the impact on efficiency of quickly restoring transportation services after incidents for customers.

FREQUENCY:
Annually (in April)

DATA COLLECTION METHODOLOGY:
The methodology involves an analysis of operational records collected in real-time, and results are contingent on the scale, number and types of incidents causing disruptions.

NATIONAL BENCHMARK:
Arizona – 32 minutes

North Carolina – 69 minutes

Connecticut – 45 minutes

Iowa – 56 minutes

Michigan – 54 minutes

Minnesota – 35 minutes

Missouri – 24 minutes

New Jersey – 43 minutes

Virginia – 32 minutes

PERFORMANCE MEASURE 5.2A

Restoring Transportation Services: Average Time to Restore Normal Operations After Disruptions

MDOT's customers expect a safe, well-maintained, efficient and reliable transportation system with minimal disruption to travel. Rapid response to effectively manage and clear incidents that disrupt highway travel is one strategy that is essential in meeting these expectations. Efforts to improve coordination and cooperation among TBUs and emergency responders facilitate the reduction in response times and the overall average incident duration, restoring travel more quickly for customers. The "average incident duration" is a measure of the time it takes a response unit to arrive, plus the elapsed time between the arrival of the first unit and the time stamp in the CHART advanced traffic management system denoting the restoration of normal operating conditions.

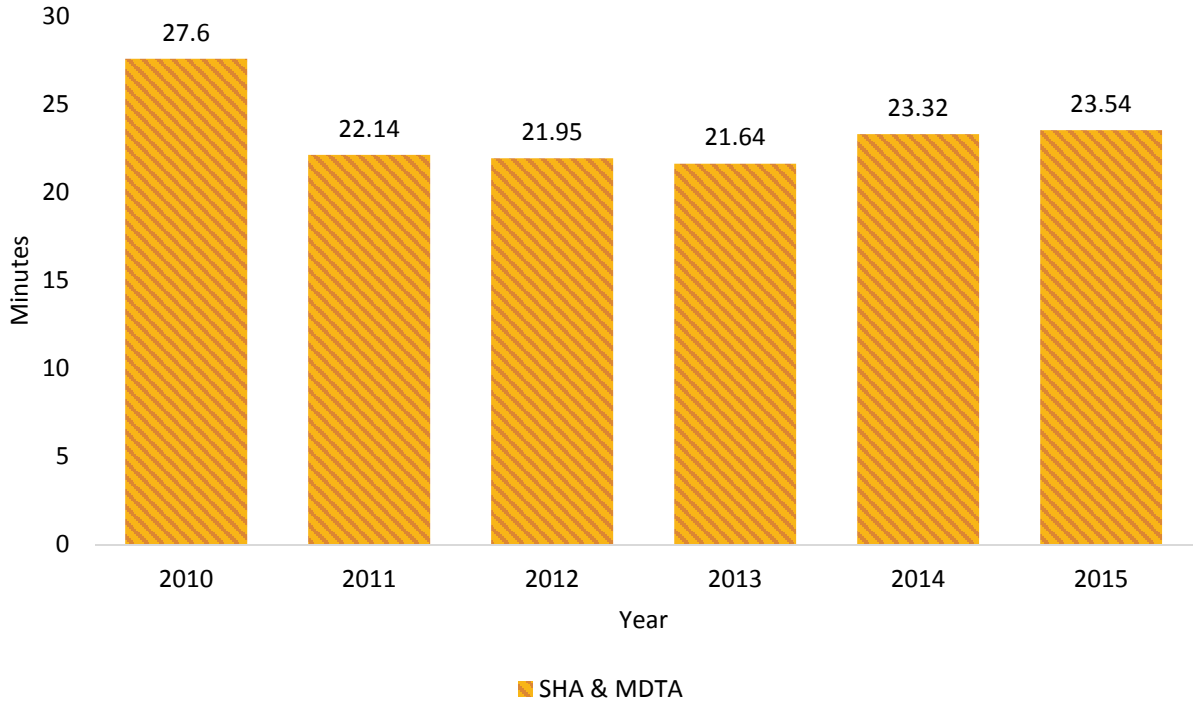
As shown in chart 5.2A.1, the average incident duration between years 2010 and 2015 has been consistently less than 30 minutes. The slight increase in average incident duration in 2014 (23.32 min.) and 2015 (23.54 min.) is likely due to the addition of overnight and weekend patrol hours. During the night and weekends, incident clearance takes slightly longer, since emergency responding agencies operate at reduced staffing levels, or depend on "on-call" staff. However, performance measures show that night and weekend patrols have a significant positive impact on reducing overall travel delays.

The primary strategies for improving Transportation Incident Management focus on assuring that emergency responders have well established coordination procedures, effective communications, thorough training and the resources available to address any type of incident. MDOT is leading three initiatives to improve coordination with the MSP including; formalizing working relationships with the heavy tow industry through MSP managed agreements which may include performance incentives for prompt vehicle recovery; organizational modifications to better support inter-organization coordination between MSP and MDOT; and enhancing data collection on reported crashes including the identification of preventable secondary incidents. MDOT is also supporting the deployment of the Maryland First radio system statewide to improve inter-organization emergency communication. And, MDOT is leading efforts to provide standardized incident management training to raise the level of emergency preparedness and safety of emergency responders who manage incidents on the transportation system.

PERFORMANCE MEASURE 5.2A

Restoring Transportation Services: Average Time to Restore Normal Operations After Disruptions

Chart 5.2A.1: Average Highway Incident Duration (minutes) CY2010-CY2015



TANGIBLE RESULT DRIVER:
Phil Sullivan
Maryland Transit Administration (MTA)

PERFORMANCE MEASURE DRIVER:
Joseph Sagal
State Highway Administration (SHA)

PURPOSE OF MEASURE:
To understand the impact on efficiency of quickly restoring transportation services after weather events.

FREQUENCY:
Annually (in April)

DATA COLLECTION METHODOLOGY:
The methodology involves an analysis of operational records collected in real-time, and results are contingent on the scale, number and types of weather events.

NATIONAL BENCHMARK:
Minnesota – 3 hours

Washington, DC – 18 hours

Missouri – 3.8 hours

PERFORMANCE MEASURE 5.2B

Restoring Transportation Services: Average Time to Restore Normal Operations After a Weather Event

Disruptions in travel due to inclement weather (snow, ice, etc.) require specialized operations experience and rapid response to restore normal operating conditions. To understand performance during winter storms, MDOT collects data on the "average time to restore normal operations after weather events." This measure is calculated by identifying the lapse in time from the ending of frozen precipitation in a maintenance shop's area of responsibility and achieving bare (wet or dry) pavement conditions.

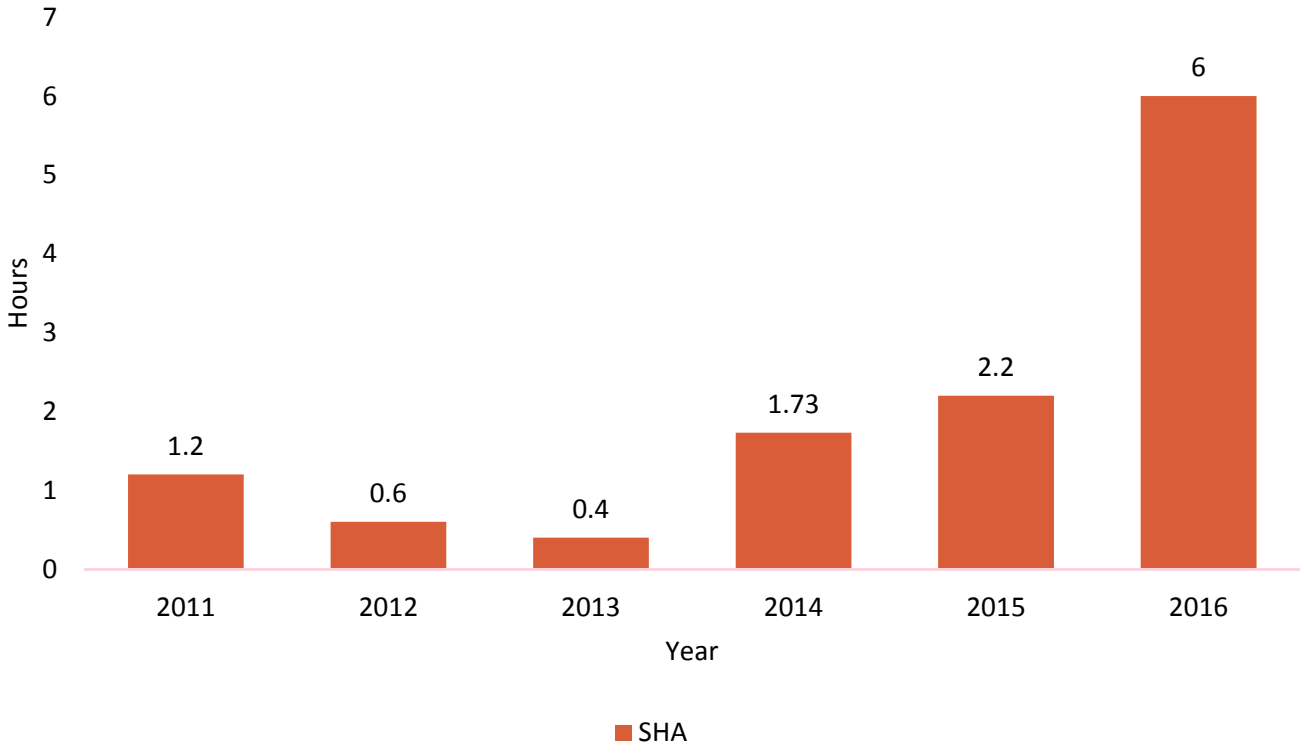
As shown in chart 5.2B.1, the average time to restore normal operations after weather events for the years 2011 through 2015 was consistently less than the benchmark value (3.8 hours –Missouri). The Average Time to Restore Normal Operations after a Weather Event increased to 6 hours in Fiscal Year 2016, mostly due to the impacts of Winter Storm Jonas which involved more than 24 inches of snow accumulation, over the period of January 22-24, 2016.

Recognizing that a large winter event such as Jonas presented unique challenges, MDOT initiated a major after-action initiative, which identified 30 tasks for improving Maryland's winter storm preparedness. Some of the major tasks included compiling and maintaining winter storm emergency contact lists; updating emergency procurement procedures for obtaining necessary resources (e.g. food, lodging and supplies) during major weather events; developing the capability of displaying automated emergency weather warning on programmable highway message signs; identifying resources for transporting personnel during heavy snow conditions; and documenting and distributing lists of "pre-identified" snow disposal areas. All tasks were accomplished between February and October 2016. Another major strategy was to incorporate contracts for private, heavy-tow services under the emergency snow removal procurement regulations. These services are used to recover and relocate trucks stranded in the snow from travel lanes, to maintain a clear roadway and facilitate overall snow removal efforts.

PERFORMANCE MEASURE 5.2B

Restoring Transportation Services: Average Time to Restore Normal Operations After a Weather Event

Chart 5.2B.1: Time to Regain Bare Pavement After Snow (hours) CY2011-CY2016



TANGIBLE RESULT DRIVER:
Phil Sullivan
Maryland Transit Administration (MTA)

PERFORMANCE MEASURE DRIVER:
Negash Assefa
Motor Vehicle Administration (MVA)

PURPOSE OF MEASURE:
To measure percentage of services through alternate methods other than in-person visit as an indicator of easy and reliable access to MDOT services and products.

FREQUENCY:
Semi-Annually (in April and October)

DATA COLLECTION METHODOLOGY:
Formula accounts for total customer transportation services and products compared to those acquired by alternate methods.

NATIONAL BENCHMARK:
FY2018 - 68 percent

PERFORMANCE MEASURE 5.3

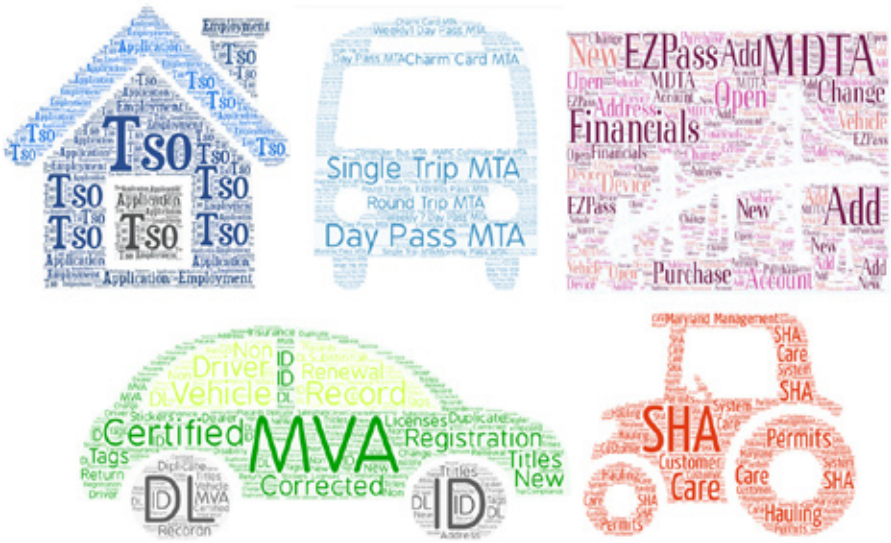
Percent of Transportation Services and Products Provided Through Alternative Service Delivery (ASD) Methods

MDOT customers want easy and reliable access to acquire transportation services and products. A 2015 Pew Research Center study, shows 42 percent of Americans use the internet to get government services and/or information and 22 percent use the internet to make or receive payments. Including the projected increase in use of smart phones, it is expected that up to 68 percent of MDOT customers will complete transactions at their leisure without having to visit MDOT offices.

The methodology used to capture data is transaction count for services or goods delivered by ASD. Service Delivery Channel (SDC) for ASD includes Web, KIOSK, call center/IVR and mail-in. The percentage of ASD is derived by dividing ASD transactions by the number of total transactions. At present MDTA, MTA, MVA, SHA and TSO combined have 65 services available to customers through ASD methods.

For FY2017 over 25.9 million transactions were completed using ASD out of 41.2 million total. This accounts for 62.8 percent of all transactions.

The strategy to grow ASD includes marketing to effect behavior change, looking for services to be added to ASD and capturing services that may not be reported.



PERFORMANCE MEASURE 5.3

Percent of Transportation Services and Products Provided Through Alternative Service Delivery (ASD) Methods

Chart 5.3.1: Alternative Service Delivery by TBU CY2013-CY2017 (YTD)

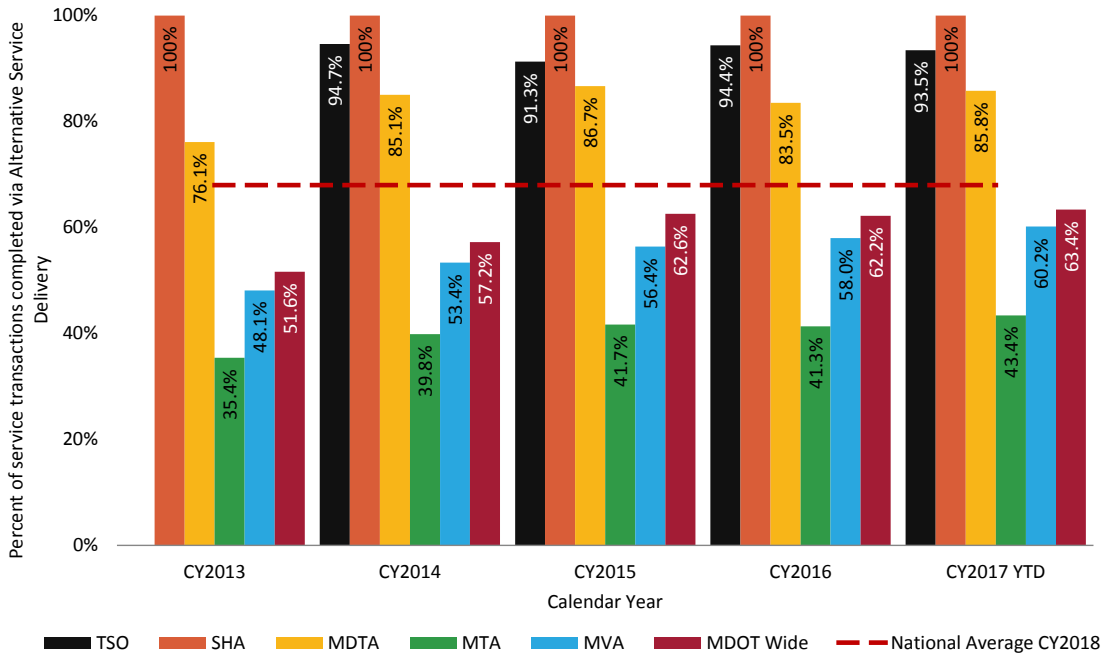
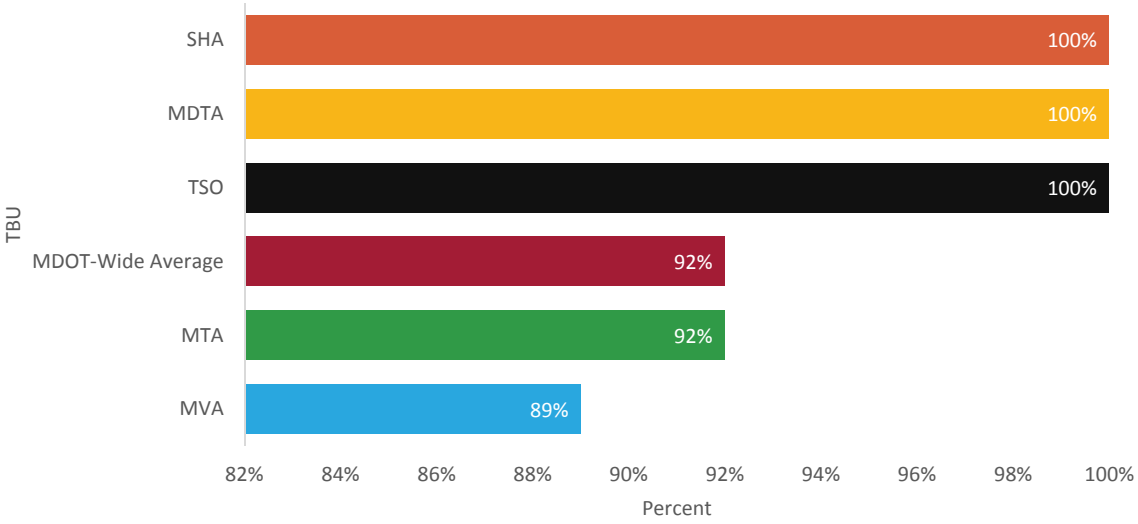


Chart 5.3.2: Percent of Customer Services Available via Alternative Service Delivery by TBU CY2017 (YTD)



TANGIBLE RESULT DRIVER:
Phil Sullivan
Maryland Transit Administration (MTA)

PERFORMANCE MEASURE DRIVER:
Ralign T. Wells
Maryland Aviation Administration (MAA)

PURPOSE OF MEASURE:
To assess the functionality and value of real-time signage and information systems offered.

FREQUENCY:
Quarterly for functionality.

Annually for customer satisfaction (in July).

DATA COLLECTION METHODOLOGY:
Sampling of real-time signage or IVR systems to determine a percentage of functionality.

Survey users to assess their opinion of usefulness and satisfaction with Real-Time Information Systems.

NATIONAL BENCHMARK:
85 percent-90 percent functionality (according to Clever Devices, a private consulting firm specializing in public transportation real-time information technologies)

PERFORMANCE MEASURE 5.4A AND 5.4B

Percent of Functional Real-Time Information Systems Provided; Customer Satisfaction with the Usefulness & Accuracy of Real-Time Information

MDOT's customers benefit from "real-time" information systems installed throughout the transportation network offering travelers the most accurate and up to date information available. These systems help customers prepare for and manage their time while using statewide transportation services.

Combined, all TBUs exceed industry standards of 90 percent functionality, averaging 99 percent functionality for Q1 of CY2017.

Currently, all TBUs have processes in place to ensure that any system failures are immediately addressed to ensure near 100 percent functionality at any given time. Systems will continually be monitored to ensure continued stellar "up-time" performance of these systems.

PERFORMANCE MEASURE 5.4B

Percent of Transportation Services and Products Provided Through Alternative Service Delivery (ASD) Methods

Chart 5.4A.1: Percent of Functional Real-Time Information Systems Provided CY2016-CY2017

	CY2016 Q3	CY2016 Q4	CY2017 Q1	CY2017 Q2
MVA Wait Time	100%	100%	100%	100%
MTA Mobility	100%	100%	100%	100%
MTA Bus Tracker	100%	100%	100%	100%
MTA Light Rail	100%	100%	100%	100%

	CY2016 Q2	CY2016 Q3	CY2016 Q4	CY2017 Q1
MAA Flight Info	100%	100%	100%	100%
MDTA CHART	100%	98.5%	98%	99.3%
SHA CHART	97.5%	100%	98.7%	99.1%
MAA Next Vehicle	92.5%	96.5%	98%	96%
MTA MARC	94%	97%	98.5%	99.1%